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FOREST ENTOMOLOGY

A. D. Hopkins, Entomologist in Charge

J. E. Patterson, of the Pacific Slope Field Station at Ashland, Oreg., reports that during the month of July he and P. D. Sergent have been conducting investigations to determine the influence of slash on a normal infestation of Dendroctonus brevicomis Lec. in western yellow pine. This slash was recently removed from a highway which is now in course of construction through the Cascade Mountains in southern Oregon, and passes through a heavy stand of high grade western yellow pine. As many mature trees of this species were felled and removed from the roadway to the surrounding standing timber the opportunities offered for this study are ideal.

Investigations of insect injury to mesquite wood carried on during the past three years in Arizona have resulted in determining means of preventing this loss for all practical purposes. The experimental work was done at the Southern Rocky Mountain Field Station near Tucson, Ariz., by W. D. Edmonston and George Hofer under the direction of Dr. F. C. Craighead. The preliminary results will shortly be published as a Farmers' Bulletin. This region is dependent in a great measure on mesquite wood for fuel and fencing, posts, and timbers for frame and roofs of adobe houses. Fuel wood is selling for from $20 to $24 a cord. As much of the wood is cut in the early spring and fall it is subject to severe damage by numerous species of insects in the order Coleoptera. The investigations this season have been confined to life-history studies of some of the many insects feeding in mesquite. Many interesting facts on the more important of these insects have been determined by Messrs. Edmonston and Hofer.

The bagworm has been very injurious during the last of July and August throughout the southeastern United States, particularly on young arborvitae shade trees.

Earwigs are reported to be seriously damaging shade trees and other vegetation in Portland, Oreg. This is a rather unusual type of injury in the case of shade trees.

This branch of the Bureau is endeavoring to obtain figures on the number of shade trees in the United States and an estimate of their value. We would be pleased to have any estimates or figures in regard to this from men in the Bureau located in various cities throughout the country.

BEE CULTURE

E. F. Phillips, Apiculturist in Charge

A Chautauqua for Wisconsin beekeepers was held on the University of Wisconsin camp grounds during the week of August 16-21. Dr. E. F. Phillips and G. S. Demuth conducted the extension short course for commercial beekeepers similar to those conducted previously in various parts of the country. Nearly 200 beekeepers from Wisconsin and adjacent States registered for this short course.

G.H. Cale and L.R. Watson conducted an extension short course for beekeepers at Raleigh, N. C., during the week of August 23-28. This is the last of these short courses that has been scheduled. These courses have proved quite popular among extensive beekeepers and the demand for this phase of beekeeping extension work is increasing. Unfortunately this work can not be continued except in a limited way.

G.S. Demuth attended a meeting of the Virginia State Beekeepers' Association on August 5 and a meeting of the West Virginia State Beekeepers' Association on August 10 and 11.

In some portions of the clover region excellent crops of clover honey have been produced this season and throughout this region the colonies of bees are in splendid condition for winter. The honey crop throughout the United States is probably not far from the normal average per colony but the number of colonies has greatly increased during the past few years.

SOUTHERN FIELD CROP INSECT INVESTIGATIONS

J.L. Webb, Entomologist Acting in Charge.

Last spring an arrangement was made with a group of Louisiana sugar planters to assist in financing an expedition to Cuba to collect tachnid parasites of the sugar-cane moth borer. E. R. Barber went to Cuba with four student assistants, and made his headquarters first at Mercedes and afterwards at "La Granja" agricultural school near Colon. From the authorities at "La Granja" much assistance was received. Living quarters were provided free. As Mr. Barber took an automobile with him, he was able to cover a wide stretch of territory in the search for parasites.

T. E. Holloway received the parasites in New Orleans, and with one assistant liberated them on the plantations. Nearly 6,500 parasites were collected, which exceeded an estimate made at the beginning of the season by about 1,500. About 48 per cent reached New Orleans alive. They were handled in a special insectary built for the purpose. First the puparia were placed under lantern globes on damp sand to allow the flies to emerge and more readily to prevent the release of secondary parasites. Then the flies were transferred to larger cages where they were held for at least twenty-four hours, and finally they were taken to the plantations in cages made from old Schmitt insect boxes. These cages were small enough to be carried easily in automobiles and trains, and were found to be quite successful.

As the work went on it became noticed in the press, and later representatives from two moving picture companies - Pathe and Selznick - asked permission to make pictures of the flies. A complete reel was prepared by Pathe, illustrating all phases of the work from the collection of the puparia in Cuba to the release of the flies on the plantations in Louisiana. This reel is being exhibited by the New Orleans Times-Picayune in moving picture theaters in every town and city in southern Louisiana. The Selznick company have incorporated a few scenes in one of the news weeklies put out by them, and this is being shown throughout the country.

The party returned from Cuba on August 5, after a rather successful summer's work. Parasites were released in about forty fields in southern Louisiana, on one or more plantations of every contributor to the fund provided by the sugar planters.

LIBRARY

Mabel Colcord, Librarian

New Books

Ballou, H. A. The pink boll worm (Gelechia gossypiella, Saunders) in Egypt in 1916-1917, 120 p., 14 pl. Cairo, Government press, 1920
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Bestimmungs-tabellen der europaischen coleopteren. hft. 81-86, Paskau (Mähren) & Brunn, 1917-1919.
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Chandler, Stewart C. A study of the malarial mosquitoes of southern Illinois. I. Operations of 1918 and 1919. 307-328 p., illus., XXXI-XXXIX pl. Urbana, Ill., July 1920. (Ill. Dept. Regis. & Ed. Div. Nat. Hist. Surv. Bul., v. 13, Art. XI.)

Doflein, Franz. Der ameisenlöwe... 138 p., illus. 10 pl. Jena, G. Fischer, 1916.

Dominican Republic - Agricultura e Immagracion, Ministerio de. Direccion de Agricultura. Vulgarizacion Agricola 1-2. (Santo Domingo) 1902.
1. La lucha contra las ratas, por Holger Johansen. 2. Necesidad de extirpar la garrapata, por A. Rivera.

Flint, W.B., & Malloch, J.R. The European corn-borer (Pyrausta nubilalis) and some similar native insects. Ill. Dept. Regis. & Ed. Div. Nat. Hist. Surv. Bul., v. 13, Art. X, p. 287-305, illus. Urbana, Ill., June, 1920.

Ford, J.H. Elements of field hygiene and sanitation. 248 p., illus. Phila., P. Blakiston's Son & Co., 1917.

Frohawk, F. W. Birds beneficial to agriculture. 47 p., XXII pl. London, Printed by order of the trustees of the British Museum, 1919. (British Museum (Natural history) Economic Series No. 9.)

Herrick, G.W. Insects of economic importance - outlines of lectures in economic entomology. New and rev. ed. 172 p. N.Y.., The Macmillan Co., 1920.

Ito. Hirowo. On the metamorphosis of the malpighian tubes of Bombyx mori L. 105-118 p., 2 pl. Nishigara, Tokyo, March, 1920. (Imperial Sericultural College Tokyo, Japan, Bulletin, v. 1, no. 5.)

Lebert, Hermann. Ueber die pilzkrankheit der fliegen nebst bemerkungen über andere pflanzlich-parasitische krankheiten der insekten. 48 p., III pl. Zurich, 1857. (From Allgemeine schweizerische gessellschaft für die gesammton naturwissenschaften. Neue denkschrifte, v. 15.)

Needham, J.G. Burrowing mayflies of our larger lakes and streams. p. 269-291, pl. LXXI-LXXXII. (Doc. 883 from Bulletin Bureau of Fisheries, v. 36, 1917-1918. Washington, Government Printing Office, 1920.

Root, A. I. The A B C and X Y Z of bee culture... 856 p., illus. Medina, O., The A. I. Root Co., 1920.

Saunders, C. F. Useful wild plants of the United States and Canada... 275 p., illus., plates. N. Y., R. M. McBride & Co., 1920.

Simmins, Samuel. A modern bee farm and its economic management... 479 p., illus., plates. Heathfield, Sussex, The author, 1914.

Who's Who in America. v. 11, 1920-1921. Ed. by Albert Nelson Marquis. Chicago, A. N. Marquis & Co., 1920. 3302 p.

CEREAL AND FORAGE INSECT INVESTIGATIONS

W. R. Walton, Entomologist in Charge

Through the courtesy of Dr. C. R. Ball, cerealist in charge, Cereal Investigations, Bureau of Plant Industry, there appeared in the Cereal Courier of July 31 a full list of the field stations of Cereal and Forage Insect Investigations. The Courier is the news letter of the office of Cereal Investigations, Bureau of Plant Industry. A brief statement by Dr. Ball urges cooperation of the cereal specialists with our field men wherever opportunity arises. This movement should be given the fullest support of the field men of Cereal and Forage Insect Investigations. Members of Dr. Ball's staff have been in touch with some of our stations at various times, and always with the most beneficial results, so far as our investigations have been concerned. Most of our cereal insect control problems require modification of existing cropping practices, and for this reason are in immediate contact with the field covered by the Office of Cereal Investigations. Dr. Ball has been kind enough to request his field men to furnish our men with information regarding crops, crop varieties, and cropping practices, wherever requested, and the representatives of this office should feel free to exchange all relevant data regarding such matters with Dr. Ball's staff, and are urged to make good use of the help of the cerealists, which has thus been made available. This movement is in direct line also with a recently expressed desire of the Secretary for more cordial relations between Departmental employees everywhere, and field men should call on and become acquainted with the staff of workers in Cereal Investigations wherever opportunity offers.

There follows a list of the field stations of Cereal Investigations which could be most easily consulted by the investigators of cereal and forage insects:

Knoxville, Tenn., Carl Kurtzweil in charge, Tennessee Agricultural Experiment Station. Cereal diseases.

Ithaca, N. Y., William T. Craig in charge. Breeding Investigations, wheat and oats.

Columbus, Ohio, John W. Baringer in charge, Ohio State University, Department of Botany. Control of stem rust.

East Lansing, Mich., Walter F. Reddy in charge, Michigan Agricultural College. Control of stem rust.

Lafayette, Ind., Purdue University Experiment Station. H. S. Jackson. Investigations of leaf rust. George N. Hoffer and staff. Investigations of corn rot. F. J. Pipal and staff. Control of stem rust.

Bloomington, Ill., James R. Holbert in charge. Investigations of corn rot

Granite City, Ill., H.H. McKinney in charge. Investigation of foot rot (take-all) and flag smut of wheat.

Urbana, Ill., Leo R. Tehon in charge, Illinois University. Control of stem rust.

Madison, Wis., Agricultural Experiment Station, A. G. Johnson and staff. Investigation of cereal diseases, including wheat scab, Helminthosporium disease of barley, corn rots, flax wilt and canker, cereal smuts, etc.
S. B. Fracker, State Entomologist. Control of stem rust.

Ames, Iowa, I. E. Melhus and staff. Crown rust of oats. Rupert H. Porter and staff. Control of stem rust.

Columbia, Mo., L.J. Stadler in charge. Agronomic investigation of cereals.

Woodward, Okla., John B. Sieglinger in charge, Woodward Field Station. Investigations of broom corn and grain sorghum, with minor attention to small grains.

Manhattan, Kans., Agricultural Experiment Station, Leo E. Melchers and staff. Investigation of stem rust and rust resistance in wheat varieties. John H. Parker and assistant. Investigation of wheat breeding for cold resistance and rust.

Hays, Kans., Arthur F. Swanson. Agronomic experiments with cereals.

Lincoln, Neb., James A. Faris and staff. University of Nebraska. Control of stem rust.

Brookings, S. Dak. Henry C. Gilbert and staff. Control of stem rust.

Agricultural College, N. Dak., William E. Brentzel, Investigations of flax diseases. George C. Mayoue. Control of stem rust.

Aberdeen, Idaho, Louis C. Aicher. Experiments in cereal production, tillage, and rotation under irrigation.

Pullman, Wash., Edward F. Gaines and assistant. Investigations of wheat breeding for smut resistance.

Lind, Wash., Max A. McCall. Investigation of production, tillage, and rotation of cereals.

Moro, Oreg., David E. Stephens. Investigation of production, tillage, and rotation of cereals.

Biggs, Calif., Jenkin W. Jones. Investigations of rice.

Chico, Calif., Victor F. Florell. Agronomic experiments with cereals.

DECIDUOUS FRUIT INSECT INVESTIGATIONS

A. L. Quaintance, Entomologist in charge.

R.B. McKeown, who has been assisting M.A. Yothers at Medford, Oreg., in connection with apple insect investigations, has resigned from the service to accept a position under the Smith-Hughes Act, teaching vocational agriculture at Glenwood Springs, Colo.

A.R. Moore, who has been assisting in connection with insecticide investigations against the Japanese beetle at Riverton, N.J., has resigned to resume his teaching duties at Rutgers College.

H.E. Thomson, who has been engaged as field assistant in insect control at Riverton, N.J., in connection with the Japanese beetle project, has resigned to accept a position with the State Department of New Jersey.

Miss Julia Ellen Edmonson, insect delineator, has been granted leave for one month for the purpose of undertaking color work at the Philadelphia Academy of Fine Arts.

TRUCK CROP INSECT INVESTIGATIONS

F. H. CHITTENDEN, Entomologist in Charge

The following taken from the report of J. E. Graf indicates in general the results accomplished in sweet-potato weevil control during the past fiscal year, substantial progress being made in each State:

Florida.

The past year saw the completion of the second year of eradication tests. After checking up the work of the previous year it was seen that the weakest part of the campaign was in the cleanup given the fields in the infested territory. In the year just past additional care was given to this phase of the work, about $1,000 being spent in removing the old vines and leftover potatoes from the fields on which the least progress had been made in the preceding year. The cost of this operation averaged about $12 per acre and later inspection in the fields cleaned has indicated that the operation was very profitable. The inspectors gave the farmers assistance in disposing of their potatoes early and cleaned and burned most of the banks themselves. Later the drews grown by the Florida State Plant Board were distributed and the remainder of the year given over to cleaning banks and volunteer plants from the old fields. Prospects for a crop in the infested territory are very good. The life-history work was completed and progress made in the fumigation tests of stored potatoes. Eradication of wild beach morning-glory was tested out and considerable additional information gotten on the seasonal history of the weevil in both sweet potatoes and wild food plants.

Georgia.

The eradication work carried out in Georgia was performed with that in Florida and the same policy followed.

Alabama.

Because of the slight infestation in Alabama, closer supervision could be given to the plantings and no plants were allowed on the infested farms until July, 1919. This procedure was very successful and no infestation has been found since.

Mississippi.

In Mississippi where the eradication tests were used for the first time, the work followed closely the plan used in Florida the preceding year. Contracts were made with the growers and plants grown by the Mississippi State Plant Board were supplied to the farmers. At the present time it is too early to give the results of the work, but it is expected that the results will be fully as good as those obtained in Florida the preceding year.

Louisiana.

On account of the heavy infestation over large territory, the infestation of wild food plants, and lack of sufficient funds to follow up the work, no eradication was undertaken in Louisiana. Tests in cultural control were planned with C.E. Smith, whereby no planting stock was to be brought on the farm from outside. A large number of farms in the vicinity of Covington and Slidell were selected and arrangements made with the farmers whereby they would follow the inspectors' advice. The general procedure followed as closely as possible the eradication plans used in Florida and Mississippi except that no plants wer furnished the farmers. In place of furnished plants the inspectors personally selected the seed for bedding purposes, told the farmer where to bed it down, and saw that the draw bed was destroyed as soon as sufficient plants were pulled. Shortage of funds has stopped active work on this project but it is hoped that sufficient cooperation can be given so that the work can be taken up later on. This work is very promising and by all means should be followed out as soon as possible. There seems no doubt that good commercial control can be obtained by this method and if followed systematically eradication will probably result.

Texas.

In Texas the work was simply a continuation of that carried on the previous year. M.M. High has this well in hand, and while the shortage of funds has hampered the work to a great extent Mr. High can be expected to complete it at an early date.

Cooperation by the States.

The States of Florida and Mississippi gave excellent cooperation as in the preceding year. They supplied, through their respective Plant Boards, the draws used in the eradication work and in addition gave substantial financial aid near the end of the fiscal year in taking over the inspectors when the funds of the Bureau ran low. Their quarantine work has been very good, taking care of the shipment of potatoes from the infested zones and thereby keeping the weevil from spreading while the work of eradication is in progress.

H.E. Loomis, engaged as field assistant in insect control in sweet-potato weevil work at Macclenny, Fla., has resigned to complete his college work at the Florida Agricultural College.

The Chief of the Bureau returned from Europe August 21. He attended the Conference of the Imperial Bureau of Entomology in London the first of June and then visited France, Italy, and Belgium, looking into the occurrence of the European corn borer and the presence and abundance of European parasites.
